Symbols In the Mind

It is man's capacity to make complex associations of symbols in the mind that most distinguishes the intelligence of man from that of other animals.

The human brain, particularly the functioning of it which we may call the mind, is a unique phenomenon in nature -- and possibly in the universe. It is the end product of over two billion years of organic evolution, during less than one half of one per cent of which time -- some ten million years -- it has had humanoid characteristics. Even though the vertebrate brain can be traced back a half billion years and the mammalian-type brain goes back at least a third that far, a brain capable of a high order of reflective intelligence is very recent.

There is no authentic reason for assuming that the best human brains of today are any farther advanced than the best human brains of fifty or a hundred thousand years ago. Yet, the best brains of today are far more capable in their achievements than similar brains of past millenia. This is due. not to physiological improvements in the brain, but, to external aids to its function which have been improvised, mostly over the past ten thousand years. Of these aids, the means of recording data probably is the most significant.

With knowledge now available to man, it is possible to speculate on the probability that other occurrences of similar intelligence -- similar brains -- have evolved in other parts of the universe. For those who delightfully indulge in fantasies of other worlds populated with other manlike creatures, the probability is most discouraging. Even though we may allow for the occurrence of a hundred trillion galaxies in the universe, each equivalent to our own in extent and makeup, then allow for a hundred billion years of time; still, the mathematical probability that another creature similar to man would have evolved anywhere in the universe is virtually nil. Considering the phylogenetic hazards that life on the earth has faced over the past two billion years, the calculable chances that any other form of life could have arisen and developed an intelligence equivalent to that of man or greater is only infinitesimally better than nil.

Proceeding from postulates other than those of science, conclusions quite at variance with those stated above may be arrived at. But we shall deal only with the scientific method and attitude and with the facts which have been revealed by scientific investigation. Within that framework, it is relevant to say that the brain and mind of man is a unique phenomenon in the universe.

The Mechanism of the Nervous System

The brain is part of the nervous system of complex animals. The nervous system arose and developed in the early multicellular animals as a means of coordinating the various parts of the organism. Within the nervous system, the brain evolved as a coordinating center. 'Messages' come into the brain over nerve fibers. In the brain, the 'messages' are 'evaluated' and response directives are sent out over other nerve fibers. Thus, the body is made to respond to stimuli.

In the body are various tissues which are sensitive to particular stimuli; that is, each kind of sensitive tissue is capable of being stimulated by only one kind of irritation. The

retina of the eye is sensitive to certain frequencies of radiant energy. Certain tissues in the ear are sensitive to certain frequencies of vibration in the atmosphere. Certain tissues in the tongue and nose are sensitive to certain chemical substances. Certain parts of the skin are sensitive to contact with other objects. Many places in the body are sensitive to heat and cold. Other places, usually deeper in the body, are sensitive to pressure. These stimuli are transmitted to the ends of specialized nerve fibers, which carry impulses to other parts of the body.

Nerves are bundles of insulated fibers which carry impulses from one place to another in the body. The transmission is accomplished by electrochemical means. Once the end of a nerve fiber is stimulated, the impulse passes rapidly along the fiber to the central part of the nerve cell (neuron), thence outward to other nerve endings. When the impulse reaches the far end of the neuron, it may be passed on to another neuron or be extinguished. Before an impulse can pass from one neuron to another, it must 'jump' a short gap, called a 'synapse,' since the fibers do not come in direct contact with each other. Many impulses do not cross the synapse, hence are extinguished; only the more 'intense' impulses get across. The chemical condition of the body-fluid at the synapse determines in large measure the ease or difficulty of the 'jumping' process. Certain chemicals in the fluid interfere with the passage of nerve impulses; these are called narcotics. Other chemicals in the fluid facilitate the passage of impulses; they are called stimulants. Unless stopped at some point along its course, an impulse eventually reaches an effector -- a muscle, a gland, or the conscious center of the brain.

An impulse may cause one of three types of responses in the body, depending on which kind of effector it reaches: (1) It may cause a muscle fiber to contract; (2) it may cause a gland to secrete; or (3) it may create a conscious perception in the outer layer of the brain. It is only the last with which we are concerned here.

Perceptions are of many kinds, varying with the kind of perception cell that is stimulated. A perception is a flash of consciousness or awareness. These perceptions may be in the form of a sensation of light, or a particular color, a sound of certain pitch, a particular odor or taste, a sensation of touch, heat, cold, pressure, or pain.

At birth, most of the perceptions in the human brain are not coordinated. Presumably in the newborn infant, the sense perceptions are very blurred, particularly those of sight and sound. As perceptions are stimulated in certain combinations, they lend to organize into patterns which, after many repetitions, become stabilized. Later, the whole pattern tends to be stimulated as a unit. Thus, a pattern of sounds becomes integrated into a spoken word, or into a melody, or some other objective sound effect. Light and color patterns in the form of designs and pictures are synthesized. Touch perceptions become coordinated into the feel of some particular object.

Once a pattern is formed, it is more easily restimulated as a pattern. In time, after numerous repetitions, it becomes easily stimulated as a unit. In fact, the brain may receive stimuli for only part of the pattern, yet the whole pattern will 'respond.' In the case of rapid reading, one does not 'see' every letter of a word; only a few letters will provide the clue for arousing the pattern of the whole word. This development introduces an element of risk, however; for one may 'think' he sees the word 'Philippine' when the word is actually 'Philistine,' for example. This phenomenon forms the basis for one's seeing or hearing things that are not exactly so.

Development of Memory

The formation of perception patterns in the brain which are capable of easy restimulation constitute what is known as 'memory.' Certain clue stimuli will activate certain pattern sensations, or even whole sequences of patterns. Memory, then, is the restimulation of perception patterns and sequences which have been implanted in the brain. As in a computing machine, nothing can be obtained from the 'memory bank' which was not first placed there.

The mind of man is basically a disorganized function; that is, there are billions of perception cells in the brain which are not organized into patterns at birth. They are capable of being organized into any number of pattern combinations. The brain of an Eskimo, for example, is similar in its potentials at birth to the brain of a Ceylonese; but, since the mind is developed in a different environment, different climate, different language, and a different culture, the end result is quite different.

This disorganization of the brain cells in man permits the widest flexibility in adjustment to environmental factors. It permits the human being to meet and adapt to conditions and changes which would defeat less intelligent creatures. It means also that the patterns which govern one's life must be learned by each individual. This is a relatively new thing in animal evolution. Most animals are governed by patterns which have become fixed, known as instincts. Instincts are transmitted from generation to generation by heredity. Hence, most animals do not have to learn how to get along in the world. The patterns are already organized for them, and all they do is respond automatically to specific stimuli. The instinctive organization in the brain is often very complex. For example, a bird does not have to learn how to build a nest; the behavior sequence associated with building a nest is already fixed in the brain. Instincts are very efficient in specific situations, but they do not permit adaptive changes to new conditions.

Mammals are changing over from full reliance on instincts to a learned intelligence. Man has progressed farther along this line than any other animal. As a consequence, the human animal has lost almost all his former instincts. In the new born baby, only two instincts are prominent -- a sucking motion of the lips and a grasping action of the hands. The rest are reduced to instinct tendencies at most; for example, the baby eventually has an urge to stand up and walk, but most of the detailed motions have to be learned by trial and error experience.

Reflexes and Conditioned Reflexes

A peculiar development of the more complex brain is its ability to associate two or more pattern perceptions. When two patterns are stimulated at about the same time, for example, the sight of a rooster and a crowing sound, the two become associated together in the brain. After several to many repetitions, the stimulus of either pattern will bring into consciousness the other pattern also. Only the sound of crowing at dawn will bring 'to mind' the memory of a rooster as well. Thus, a conditioned reflex has been formed. Later, other patterns may become associated with the rooster, such as a picture of a rooster, a stylized sketch, or a particular kind of footprint. Such associations seem simple and proper; but it is also possible to form associations between two patterns (symbols) which have no intrinsic relationship to each other. The printed word 'rooster' would not in itself suggest the male of

the barnyard fowl; but we can learn to associate the two symbols so that, from then on, either symbol will cause the other symbol to appear in the brain also. However, if one is raised where the Spanish language is spoken, that association would not be made; the fowl and the word 'gallo' would be so associated.

Pavlov, a Russian scientist, showed clearly how the association of ideas occurred. His experiments with dogs is classical knowledge and we need not describe them here. Suffice it to say that he demonstrated that two very remote patterns could be associated in the mind of a dog, such as the sight of food and the sound of a bell. Eventually, the mere sound of a bell would cause the dog to salivate the same as he would do at the sight of food.

The capacity to form remote associations reaches its greatest expanse in the human brain, also the capacity to form highly complex associations. Man is capable of forming a series of associations; for example, he may associate a picture of a dog with the animal dog, then he may associate the printed word DOG with the picture, then the spoken word 'dog' with the printed word, then associate the printed word CANIS with the spoken word 'dog' After all that, he will associate the word CANIS with the domestic dog. It is this capacity to make complex associations of symbols in the mind that most distinguishes the intelligence of man from that of other animals. The first symbols formed in the mind are essentially pattern reproductions of the stimuli received by the sense organs -- the eyes, ears, nose, tongue, hands. But, as sense experiences multiply, the brain tends to simplify its images. Hence, mental pictures tend to become reduced to a few salient features. Eventually, the picture images become reduced to hieroglyphics. So, thereafter, all we have to see are the hieroglyphics and the mind supplies the full picture.

Through continued association of patterns, we build up generalized concepts, tastes, and behavior patterns around the simplified symbols. These symbols become fixed in the nerve cells of our brains, where they serve as guide-posts or points of reference for our thinking, actions, and feelings. In some minds, a Roman Cross becomes fixed as a highly significant symbol; in other minds, it may be the Swastika, a Star and Crescent, a Hammer and Sickle, a Star of David, or a Sunburst that is highly significant. Around such symbols are built up a whole complex of intellectual, emotional, and physical response patterns. This continues to be so even though the things for which the symbol stands may be vague, uncertain, or forgotten, or even if what the symbol stands for has been reversed from what it stood for in the beginning. The symbol alone, divorced from its earlier meaning, will produce a conditioned response.

Danger of Illusions

The mind of man is not a fool-proof function. Not all of the pattern associations formed in the mind result in greater comprehension of the environment and a more useful adjustment to it. Certain chains of association can stray far from the basic patterns built up from sense stimuli, so that the end results bear little or no relationship to reality outside of the mind. The human mind thus is capable of creating fantasies and illusions, and these may appear to the beholder to be as real as anything in the physical world -- yet they exist only as perceptions in the brain. If a person accumulates too many of these illusions, he may become a social problem.

The ancient Greek philosopher, Plato, brought to light the principle of illusions in his

Allegory of the Cave, wherein the shadows of the images of things became more real to the inhabitants of the cave than the real things themselves. People tend to hold on to their illusions and remain devoted to them even though it is demonstrated that they are no more than fantasies. Plato was not a scientist and he offered no explanation for the occurrence of such phenomena.

An explanation of how the mind acquires its symbols and associations had to wait for the rise of science and the development of advanced neurology on the one hand and experimental behaviorism on the other. (Unfortunately, psychology evolved more from philosophy than from science, hence, is still cluttered up with philosophical debris.)

The Discipline of Science

Science, technology, and the technical arts provide a discipline for the mind which requires that it maintain a close correlation between the symbols in the mind and the external physical world -- at least in those areas where the discipline applies. Within these disciplines, a few individuals, over the past 400 years, have been able to make great progress in man's knowledge of external phenomena and in the adaptation of this knowledge to his use. During this time, mankind has learned how to provide a comfortable, stable livelihood for a greatly expanded population. Man is on the verge of finding ways of traveling beyond his own planet. He is on the verge of learning the secrets of organic heredity and development. He has pretty well mastered the technique of releasing energy in such forms and in sufficient concentrations to destroy all life on earth.

The functions of the senses and the brain have been greatly enhanced with instruments for improved observation and analysis and with means of keeping records. The individual does not need to rely upon his own senses and experiences to get by. lie can employ instruments to detect tilings that are far beyond the reach of his senses; and he can draw upon the accumulated knowledge of the past.

Different individuals vary greatly in their capacity to make associations in their brains, par particularly the more complex ones; hence, there is a wide range in the intelligence of individuals. Also, as we grow older, it becomes more difficult to form new associations; so, we lend to think in terms of our past associations of ideas. In a static society and unchanging environment, this is no handicap. Prior to the past century, all societies were static and unchanging (except for exigencies brought on by wars, disasters, and migrations). Now, mankind is faced with rapidly changing environment. The older people now living have witnessed more change than occurred in any thousand-year period of the past. Hence, we are now called upon to make more new and rapid associations in the mind than any generation before us.

Concepts Change Slowly

Our capacity to change the symbols in our minds is exceeded by the speed and extent of the external changes about us. None of us can keep up, even with the relevant changes and new discoveries. Symbols which once seemed to serve us as guideposts no longer work, and we become confused. For example, the symbols which made up the concept of working for a living do not seem to conform with reality anymore, at least not for several million people in the United States. The factors of living have now become so complicated that we can adapt to

only a small facet of the whole situation about us. In effect, we become cultural recluses. Groups of people, even in the same city, become culturally isolated from each other. The individuals of each group have organized a distinctive complex of symbols in their minds and find harmony only with others who have similar complexes.

Concepts and tastes may be individual and personal but, more often, they are socialized; that is, they are the concepts and tastes held in esteem by the community -- the place and time -- where one resides. There are styles of houses, clothing, transportation vehicles, sports, socializing, and manners which are adopted by the majority in any one place and time. Such group tendencies indicate a desire to conform rather than to live as free and unlettered individuals. Living is much simpler that way. The group makes the decisions and sets the patterns or styles -- by means which the individual does not recognize or understand, but he goes along as a matter of expediency.

Symbols Can Be Good or Bad

From the group, we learn that certain symbols are good and other symbols are bad. These are not necessarily the symbols which we would choose as good and bad if we were left on our own, but we tend to go along for the sake of conformity. Actions and things which bring pleasure to us we are inclined to call good, and those actions and things that bring pain we are inclined to call bad. However, the mind is capable of making perverted associations. That which brings pleasure, hence should be called good, may become associated with the symbol 'bad.' Then, instead of being idolized as something good, it may be despised. For example, a certain kind of food, say apricots, may taste very good to you; but, if you are repeatedly informed by your group that the eating of apricots is bad, you will tend eventually to despise apricots and regard them as evil. Certain anti-hedonistic religious cults have come to regard all pleasures as bad and to regard pains and frustrations as good.

A prominent good symbol of the West at this lime is Freedom. Certain people become passionate in their espousal of Freedom. In their minds, it is the symbol of that which separates all Good from all Evil. It is regarded as being so vital and so desirable that men would die for it rather than permit it to be endangered. What, then, is Freedom? Is it the right to eat if one is hungry? Is it the right to be clothed against exposure and cold? Is it the right to be protected from danger? Is it the right to medical care in case of sickness? No! It is none of these, for all of these rights may be absent from millions of people who are considered Free. Further, these rights may be present among people who are regarded as not Free, and they may be roundly condemned by Freedom-lovers. No proponent of the Freedom symbol can explain to you what it stands for. He may voice all kinds of opinions about a wide variety of things, such as voting for political party candidates at election time, the right to be insecure, the right to be protected from exposure to indecency, the privilege of faith in a certain superstition; but his blather will be without substance. However, he will assure you that Freedom is more important than life, and he may end up with a 'profound' symbol-slogan, 'Give Me Freedom or Give Me Death!' He may even go so far in his support of Freedom as to send his son to some remote part of the globe to die for Freedom. Still, you won't find out what Freedom is.

Another Good symbol is Democracy. It is useless to try finding out what that symbol stands for, except that in some vague way it is very different from People's Democracy, which is a Bad symbol. Anyway, it is 'very important' that we save Democracy. And what is more,

you should be ready to die (or let your son die) to keep it from becoming a People's Democracy.

To some, the color red and the word 'red' are Bad symbols. Through a chain of associations in the mind, the symbol Red will cause some people to go into an emotional frenzy. There have been many cases of objections by 'super-patriots' to the use of red-colored flags as warning signals. We recall listening to a broadcast of a prize fight a few years ago in which the announcer carefully avoided mentioning the word 'red' when describing the color of the blood which flowed rather freely. The blood was 'claret,' 'carmine,' or 'scarlet,' but (heaven forbid!) it was not 'red.'

Importance of Symbols

Symbols in the mind can be very useful when there is a close correlation between the symbol and some object or event in the physical world. But when, through a chain of associations, they lead off into fantasies, they can be very misleading and dangerous. Most symbols in the minds of people are of the latter sort. Science is a modern method of correlating symbols with things that are real in the universe; and, as such, it is a strange new experience for mankind.

Technocracy has its symbols, some of them arbitrary, some of them objective and functional. The Monad Symbol in red and silver is a symbol arbitrarily chosen for purposes of identification. It also signifies dynamic balance in the social operation of an Area, particularly dynamic balance between production and distribution. A certain shade of grey color, along with a certain hue of vermilion as a secondary color, also serves as a symbol of identification. The word TECHNOCRACY is the name symbol for a particular design of social operations and, literally, it signifies skilled governance (government by skill).

The specifications for the design of Technocracy are descriptive terms which refer directly to persons, things, and events. There are no vague, philosophical symbols, such as Freedom, Justice, Virtue, Value. All of Technocracy's terms have objective referrents. The nearest approach to an abstract symbol are the words Abundance and Security. But 'abundance' is definable as a certain quantity of goods and services -- the amount required to fulfill the needs and wants of a population. Security is the optimal feasible protection from disease, privation, violence, and harassment.

Technocracy's terms have objective, definable meanings; they are not just symbols in the mind. If you wish to be only mentally titillated by abstract symbols dealing with unnatural fantasies, undefinable, or definable only in terms of other fantasies, you will find your proper milieu in the Palace of Occult Culture across the street, not in a Study Class of Technocracy Inc. But, if you are at all interested in studying the circumstances, the capabilities, and the probabilities of the social order of your Continent, you have no other place to turn to. Technocracy is unique as a design of social operations; and Technocracy Study Classes are the only reliable source of information on the subject.

- Wilton Ivie